



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,165	06/27/2003	Serge Julien Auguste Imhoff	DN2003076	7815

27280 7590 01/10/2007  
THE GOODYEAR TIRE & RUBBER COMPANY  
INTELLECTUAL PROPERTY DEPARTMENT 823  
1144 EAST MARKET STREET  
AKRON, OH 44316-0001

EXAMINER
----------

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
----------	--------------

1733

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

8

**Office Action Summary**

Application No.

10/609,165

Applicant(s)

IMHOFF ET AL.

Examiner

Justin R. Fischer

Art Unit

1733

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,8,11-13,16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,8,11-13,16 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Terminal Disclaimer***

1. The terminal disclaimer filed on November 7, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/609,165 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 8, 11-13, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata (US 5,309,970, of record) and further in view of Boon (US 4,356,219, of record), Toyoda (US 4,963,613, of record), and Watanabe (WO 01/14461, of record). The references are applied in the same manner as set forth in the Non-Final rejection mailed on May 25, 2006.

Kawabata discloses a runflat tire construction comprising a radial carcass structure 30 and at least one wedge insert 50,60 in each sidewall, wherein said carcass is formed of polyester reinforcing elements (Column 3, Lines 55-65). While Kawabata is silent as to treating the reinforcing elements, it is extremely well known to treat synthetic fiber reinforcing elements, such as polyester, in order to improve adhesion between said reinforcing elements and the surrounding rubber. In particular, Boon discloses such a

Art Unit: 1733

method in which a cord, particularly polyester, is initially treated with an aqueous emulsion comprising a polyepoxide (aqueous emulsion of epoxy) and subsequently treated with an RFL coating (Column 1, Lines 45-55 and Column 3, Lines 60+). In this instance, Boon teaches that such a method provides a high degree of adhesion between the polyester reinforcing element and the surrounding rubber. One of ordinary skill in the art at the time of the invention would have found it obvious to practice the "treatment" method of Boon in the tire of Kawabata to achieve the above noted benefits.

In regards to the RFL coating, such a coating is extremely well known in a wide variety of industries. Boon suggests that it (RFL or resorcinol-formaldehyde latex) is commonly included as part of an aqueous latex, usually a butadiene/styrene/vinylpyridine terpolymer (Column 1, Lines 25-35). While the reference fails to expressly state that the rubber latex is formed as a combination of said butadiene/styrene/vinylpyridine terpolymer and the claimed copolymer, it is extremely well known to form the rubber latex as a combination of these materials, as shown for example by Toyoda (Column 1, Lines 35-38). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to form the rubber latex in accordance to the limitations of the claimed invention.

As to the "polyepoxide" being applied to the yarns, the claims do not exclude the first and second polyepoxide from being the same and thus, the coating technique of Boon results in a cord having a structural makeup equal to that of the cord of the claimed invention (e.g. if the thickness or amount of the polyepoxide coatings in a two

Art Unit: 1733

step process is equal to the thickness or amount of the coating in a single step process). Thus, the claim simply requires that a polyepoxide is applied onto an untwisted yarns (in order to maintain structural equivalence) and an RFL treatment is subsequently applied.

With respect to the inclusion of a blocked isocyanate, said isocyanate represents an extremely well known and conventionally used additive in RFL coatings, as shown for example by Watanabe (Page 10, Lines 25-27). The reference expressly teaches that such an additive contributes to enhanced adhesive performance. Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to include a blocked isocyanate in the RFL coating of Boon.

Regarding claim 2, the carcass of Kawabata is formed of polyester reinforcing elements.

As to claim 3, PEN and PET represent the common and conventionally used forms of polyester in the tire industry- such a position was set forth by the examiner in the previous office action and remains unchallenged by applicant and as such, it is taken to be admitted prior art.

With respect to claim 4, Boon teaches a wide variety of polyepoxide compounds, including those formed by combining phenol novolac resins and halohydrins (Column 3, Lines 15-25). It is further noted that each of the additional methods are consistent with the well-known and conventional techniques of forming polyepoxides. Lastly, it is noted that the claims as currently drafted are product by process claims and it does not appear that this limitation (method of forming polyepoxide) results in a materially

Art Unit: 1733

different tire construction- thus, the limitations are not used to further limit the claimed tire article. This differs from the method limitations of the additional claims since the disclosure provides sufficient evidence that the claimed application technique (after forming a cord) results in a materially different article.

As to claim 8, Watanabe recognizes a wide variety of well known blocked isocyanates (Page 8, Lines 17-24). As to the specific amount of this compound, one of ordinary skill in the art at the time of the invention would have found the broad range of the claimed invention to have been obvious- this compound represents an "additive" that is designed to improve adhesion and one of ordinary skill in the art at the time of the invention would have expected such a component to be included in a relatively small amount. Thus, absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include the claimed blocked isocyanates.

With respect to claims 11-13, Boon teaches that the total amount of spin finish oil and epoxy together range between 0.9 and 2.0 weight percent based upon the cord (Column 3, Lines 10-15)- one of ordinary skill in the art at the time of the invention would have recognized such a range to suggest the polyepoxide be present on the cord in a range between 0.4 and 0.6 weight percent and have a DPU between 0.3 and 0.7 weight percent. Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed amounts/weights. Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed amounts/weights.

Art Unit: 1733

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata, Boon, Toyoda, and Watanabe as applied in claim 1 above and further in view of Hayashi (US 5,162,437, of record). Regarding the polyepoxide compound, Boon is silent as to the method in which the compound is formed (derived). As noted above, Boon teaches the use of wide variety of polyepoxides, including the general class of glycidyl ethers. It is well recognized that such a compound (polyglycidyl ether) is commonly formed or derived from an ortho-cresol formaldehyde novolac resin, as shown for example by Hayashi (Column 2, Lines 7-10). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to use the well known and conventional technique of forming a polyepoxide:

5. Claims 1-4, 8, 11-13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen (US 6,338,374, of record) and further in view of Boon, Toyoda, and Watanabe. As depicted in Figure 8, Nguyen discloses a runflat tire construction having a sidewall insert, a fabric underlay 54' disposed between the carcass and the belt structure, and a fabric overlay 55 disposed between the belt structure and the tread. The reference further teaches that the overlays can be formed of polyester reinforcing elements (Column 9, Lines 20-30). While Nguyen is silent as to treating the reinforcing elements, it is extremely well known to treat synthetic fiber reinforcing elements, such as polyester, in order to improve adhesion between said reinforcing elements and the surrounding rubber. In particular, Boon discloses such a method in which a cord, particularly polyester, is initially treated with an aqueous

Art Unit: 1733

emulsion comprising a polyepoxide (aqueous emulsion of epoxy) and subsequently treated with an RFL coating (Column 1, Lines 45-55 and Column 3, Lines 60+). In this instance, Boon teaches that such a method provides a high degree of adhesion between the polyester reinforcing element and the surrounding rubber. One of ordinary skill in the art at the time of the invention would have found it obvious to practice the "treatment" method of Boon in the tire of Nguyen to achieve the above noted benefits.

In regards to the RFL coating, such a coating is extremely well known in a wide variety of industries. Boon suggests that it (RFL or resorcinol-formaldehyde latex) is commonly included as part of an aqueous latex, usually a butadiene/styrene/vinylpyridine terpolymer (Column 1, Lines 25-35). While the reference fails to expressly state that the rubber latex is formed as a combination of said butadiene/styrene/vinylpyridine terpolymer and the claimed copolymer, it is extremely well known to form the rubber latex as a combination of these materials, as shown for example by Toyoda (Column 1, Lines 35-38). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to form the rubber latex in accordance to the limitations of the claimed invention.

As to the "polyepoxide" being applied to the yarns, the claims do not exclude the first and second polyepoxide from being the same and thus, the coating technique of Boon results in a cord having a structural makeup equal to that of the cord of the claimed invention (e.g. if the thickness or amount of the polyepoxide coatings in a two step process is equal to the thickness or amount of the coating in a single step



Art Unit: 1733

process). Thus, the claim simply requires that a polyepoxide is applied onto an untwisted yarns (in order to maintain structural equivalence) and an RFL treatment is subsequently applied.

With respect to the inclusion of a blocked isocyanate, said isocyanate represents an extremely well known and conventionally used additive in RFL coatings, as shown for example by Watanabe (Page 10, Lines 25-27). The reference expressly teaches that such an additive contributes to enhanced adhesive performance. Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to include a blocked isocyanate in the RFL coating of Boon.

Regarding claim 2, the underlays of Nguyen are formed of polyester reinforcing elements.

As to claim 3, PEN and PET represent the common and conventionally used forms of polyester in the tire industry- such a position was set forth by the examiner in the previous office action and remains unchallenged by applicant and as such, it is taken to be admitted prior art.

With respect to claim 4, Boon teaches a wide variety of polyepoxide compounds, including those formed by combining phenol novolac resins and halohydrins (Column 3, Lines 15-25). It is further noted that each of the additional methods are consistent with the well-known and conventional techniques of forming polyepoxides. Lastly, it is noted that the claims as currently drafted are product by process claims and it does not appear that this limitation (method of forming polyepoxide) results in a materially different tire construction- thus, the limitations are not seen to further limit the claimed

Art Unit: 1733

tire article. This differs from the method limitations of the additional claims since the disclosure provides sufficient evidence that the claimed application technique (after forming a cord) results in a materially different article.

As to claim 8, Watanabe recognizes a wide variety of well known blocked isocyanates (Page 8, Lines 17-24). As to the specific amount of this compound, one of ordinary skill in the art at the time of the invention would have found the broad range of the claimed invention to have been obvious- this compound represents an "additive" that is designed to improve adhesion and one of ordinary skill in the art at the time of the invention would have expected such a component to be included in a relatively small amount. Thus, absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include the claimed blocked isocyanates.

With respect to claims 11-13, Boon teaches that the total amount of spin finish oil and epoxy together range between 0.9 and 2.0 weight percent based upon the cord (Column 3, Lines 10-15)- one of ordinary skill in the art at the time of the invention would have recognized such a range to suggest the polyepoxide be present on the cord in a range between 0.4 and 0.6 weight percent and have a DPU between 0.3 and 0.7 weight percent. Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed amounts/weights.

As to claim 16, the tire construction of Nguyen includes a fabric underlay and a fabric overlay.

Art Unit: 1733

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen, Boon, Toyoda, and Watanabe as applied in claim 1 above and further in view of Hayashi. Regarding the polyepoxide compound, Boon is silent as to the method in which the compound is formed (derived). As noted above, Boon teaches the use of wide variety of polyepoxides, including the general class of glycidyl ethers. It is well recognized that such a compound (polyglycidyl ether) is commonly formed or derived from an ortho-cresol formaldehyde novolac resin, as shown for example by Hayashi (Column 2, Lines 7-10). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to use the well known and conventional technique of forming a polyepoxide.

***Response to Amendment***

7. The declaration under 37 CFR 1.132 filed October 26, 2006 is insufficient to overcome the rejection of claims 1-5, 8, 11-13, 16, and 17 based upon Kawabata or Nguyen as set forth in the last Office action because: the data listed in Table B does not provide a conclusive showing of unexpected results. In particular, while the inventive cord construction appears to demonstrate a slightly better run flat endurance, the experiments do not compare the inventive cord construction to the closest prior art. The closest prior art of record is Boon, which teaches the application of a polyepoxide emulsion to untwisted yarns (on site) and the subsequent application of RFL to the yarns after they have been twisted into a cord. Control 2, however, uses "adhesive activated yarns" from a manufacturer and thus, the "adhesive" or polyepoxide is in a cured or set stage when they are further processed. The process of Boon does not

Art Unit: 1733

involve the use of precured/ pre-set "adhesive" or polyepoxide but rather involves the application of polyepoxide and RFL at the time of the forming the cord. It appears that there would be a different interaction between the uncured or unset polyepoxide of Boon and the RFL, as compared to the interaction between the precured or set adhesive of Control 2 and the RFL (polyepoxide is in different form). It is suggested that applicant compare the method of Boon to that of the claimed invention to establish a conclusive showing of unexpected results.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

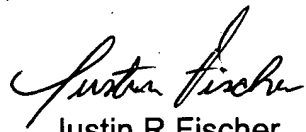
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1733

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Justin R Fischer  
Primary Examiner  
Art Unit 1733

JRF  
January 5, 2006